

CHARACTER SELECTING ADVISOR FOR A ROLE-PLAYING GAME

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ABSTRACT

Role-playing games have been a source of much pleasure and merriment for people of all ages. The process of developing a character for a role-playing game is usually very, very time consuming, delaying what many players consider the most entertaining part of the game. An expert system has been written to assist a player in creating a character by guiding the player through a series of questions. This paper discusses the selection of this topic, the knowledge engineering, the software development, and the resulting program that cuts the time of character development from about 4 hours to 30 minutes. The program was written on a PC and an Apollo in CLIPS 4.3 and currently runs on the Apollo.

INTRODUCTION

The 1993-1994 Independent Study Mentorship (ISM) program through the Northside Independent School District in San Antonio started in the Summer of 1993. The ISM program allows students to study an area of their own choosing for a whole school year. During the ISM year, the student is paired with a mentor from the community who will guide the student in his or her studies. At the end of the ISM year, the student must have developed a tangible product utilizing the knowledge he or she has acquired throughout the year. The Young Engineers and Scientists (YES) program is for ISM students interested in the areas of engineering and applied sciences. YES gives students a chance to see what actually is done in careers within the engineering and sciences. The YES program consists of two components: a three week intensive study at Southwest Research Institute (SwRI) and a one-on-one mentorship through the school year. In YES, the mentors are selected from the staff at SwRI, and they mentors are supported financially by the NSF grant that funds the YES program. In most other mentorship programs, the mentor's time is provided on a volunteer basis.

Felicia was a YES program student who was interested in artificial intelligence, specifically expert systems, which was Carol's expertise. Together we designed an expert system to help role-players build their characters more efficiently and with much less time required. In this paper, the steps taken in developing the system are outlined including product development, research, programming, and conclusions.

PRODUCT DEVELOPMENT

After deciding upon developing an expert system, an appropriate topic had to be selected. Since Carol's Ph.D. work was in game playing and Felicia had an interest in role-playing games, we decided to work in the domain of role-playing games. When we looked into the current state of the gaming world, we saw that a tremendous amount of time is required in making a character for many role-playing games. Role-playing consists of assigning traits according to a set of rules to a character which the role-player will use to act out all actions as if the player were that character within a story. To make a specific desired character, a player typically takes time to make sure the character will be described well on paper and play well during the game. We decided to develop an expert system to assist in character development so that the process of developing a character would take much less time and would hopefully develop a better character with which to play the game. One way to develop a character is by asking a series of multiple choice questions of the player. Each response by the player would further develop and define the character and would lead to the next set of questions based on the previous response. The questions were developed in such a way so as to have the character be one that closely matches the qualities and characteristics that the player is picturing about their character. This question development is where much of the research was done in addition to determining a good way to implement the design of the system.

RESEARCH

The White Wolf Storyteller game called Mage was selected because of its popularity and availability of experts in playing the game and especially in developing characters. We designed our system to be a series of questions of the user to determine the characteristics preferred by the player. We first gathered information and performed our knowledge engineering by observing games being played and interviewing the players about character generation. A few local role-players who knew the game and played it were willing to be our experts. A number of multiple choice questions were developed in interviewing the expert game players.

The Mage character sheet shown on the next page is used in character development and play of the game. It is broken up into many sections. The first section consists of the character's name and other components that make up the character's basic identity. The second section, *attributes*, pertains to the character's mental, social, and physical characteristics. The third section, *abilities*, defines a character's talents, skills, and knowledge or the things they can do. The fourth section, *advantages*, deals with the spheres of magic the character can obtain or use. The last section contains the character's health levels, combat weapons, and other characteristics that have to do with the character's longevity. This last section and the advantages section are not developed in the expert system. The Mage Character Advisor walks a player through selecting the attributes and abilities for the character being developed.

On the Mage sheet, each circle by a characteristic represents a point for that area when it is filled. The point levels indicate how much of that characteristic or ability the character possesses, and in turn how many dice can be used in playing the game. Players can lose or gain points during the course of a game, and during games the Gamemaster (GM), who is the person who runs the game, gives out experience points which can be used to buy more points.

The Ascension

Essence:
Nature:
Demeanor:

Tradition:
Mentor:
Cabal:

Attributes

Physical

Strength _____●0000
Dexterity _____●0000
Stamina _____●0000

Social

Charisma _____ ●○○○○○
Manipulation _____ ●○○○○○
Appearance _____ ●○○○○○

Mental

Perception _____ ●○○○○
Intelligence _____ ●○○○○
Wits _____ ●○○○○

Abilities

Talents

Alertness	_____	00000
Athletics	_____	00000
Awareness	_____	00000
Brawl	_____	00000
Dodge	_____	00000
Expression	_____	00000
Intuition	_____	00000
Intimidation	_____	00000
Streetwise	_____	00000
Subterfuge	_____	00000

Skills

Drive	00000
Etiquette	00000
Firearms	00000
Leadership	00000
Meditation	00000
Melee	00000
Research	00000
Stealth	00000
Survival	00000
Technology	00000

Knowledges

Computer	00000
Cosmology	00000
Culture	00000
Enigmas	00000
Investigation	00000
Law	00000
Linguistics	00000
Medicine	00000
Occult	00000
Science	00000

Advantages

Spheres

Correspondence _____00000
Entropy _____00000
Forces _____00000

Life _____ 00000
Mind _____ 00000
Matter _____ 00000

Prime _____ 00000
Spirit _____ 00000
Time _____ 00000

Backgrounds

_____ 00000
 _____ 00000
 _____ 00000
 _____ 00000
 _____ 00000

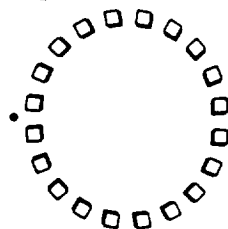
Arete

0000000000

Willpower

☐ ☐

Quintessence



Health

Bruised	-0	<input type="checkbox"/>
Hurt	-1	<input type="checkbox"/>
Injured	-1	<input type="checkbox"/>
Wounded	-2	<input type="checkbox"/>
Mauled	-2	<input type="checkbox"/>
Crippled	-5	<input type="checkbox"/>
Incapacitated		<input type="checkbox"/>

Combat

Weapon	Difficulty	Damage

Experience

Study Points

Attributes: 7/5/3 Abilities: 13/9/5 Spheres: 5 Backgrounds: 7 Freebie Points: 15 (7/5/4/2/1)

PROGRAMMING

The CLIPS programming language was selected for its relative ease of use, availability, and applicability to the problem solution. The program was originally developed on a networked PC and later moved to an Apollo Domain 4000 in order to run the 600 rules together. The program organization revolves around the characteristics to be developed. One set of questions needed to be developed for the attributes, with a subset of questions for each of the physical, social and mental attributes. Another set of questions had to be developed for abilities, with a subset of questions for determining point values for the various talents, skills and knowledge abilities. Finally, a summary or tally of the resulting character development must be given to the user.

For the attributes, the three areas are prioritized by asking the user which one is most important to them and then which one is secondarily important to them. Then according to the rules, points are assigned to each choice with first, second, and third receiving seven, five, and three points respectively. The user is then asked to work with the first choice and the three divisions under it. The divisions represent sub-areas of each attributes such as physical which contains strength, stamina, and dexterity. Next a strategy was developed for distributing the points to the sub-areas. Since the point amounts are relatively low, one multiple choice question is asked of the user where all three sub-areas are possible answers. For the first choice, the user would receive seven questions, second would receive five, and third three. Since each of the sub-areas would be represented in every question, a running total is kept of the number of times a sub-area is picked, and when questioning for that choice is done, that number becomes its level. This strategy is implemented for all three attribute choices.

As an example, the following questions are asked to support point distribution in the social attributes and a summary is given:

```
You have been allotted 7 points for your first choice: social
Please answer the next questions as truthfully as possible.

Which is more important?
<leading> people, <persuading> them, or <looking-good> for them: leading
being <smooth>, <eloquent>, or <alluring>: alluring

Consider these scenarios and type your response.
At a party, you
<1> are generally sociable, talking to all,
<2> grab the center-of-attention, or
<3> are the trend-setter: 3

After a concert,
<1> you talk so well that people think you are in the band,
<2> are asked backstage by the band personally, or
<3> you can talk the bouncers into letting you and all of your
    friends backstage: 2

When going to a job interview, you
<1> make an excellent first impression,
<2> impress them with your manners and attitude, or
<3> convince them how valuable you would be to them: 2

Which activity are you best-suited for?
<1> recruitment for clubs and organizations,
<2> fashion modeling, or
<3> double-talking: 2

Due to your answers to the preceding questions, your points
have been allotted as follows:
Charisma      : 3  "Good: People trust and confide in you."
Manipulation  : 2  "Average: Others might believe you."
Appearance   : 5  "Outstanding: First reactions are either that of awe, intense
jealousy or complete solitude."
(You have automatically been given one point in each area)
```

In the example above, the user is presented with three different types of questions: synonyms of the sub-areas names, situations, and best-suited for what-type question. A situation is:

When going to a job interview, you (1) make an excellent first impression; (2) impress them with your manner and attitude; or (3) convince them how valuable you would be to them.

A choice of number one would be a part to the sub-area of appearance, a choice of two would be charisma, and a choice of three would be manipulation. Once the questions end, the summary comes up with the point totals in each area and a short explanation of what that point level means, as given in the Mage handbook.

For the abilities, the user must again prioritize the three abilities from first to third choice. Points are assigned but in different amounts: first choice receives thirteen, second receives nine, and third five. More points are assigned because of the greater amounts of abilities a character can possess. In this section, the same strategies for point assignment as in the attributes cannot be used because of the larger number of points assigned so a new strategy was needed. Since it is a player's choice whether or not to possess any ability, the expert system gives them that choice. Instead of multiple choice questions, the questions become yes or no responses that describe a type of ability and then gives the choice of having the ability or not. If the ability is not chosen the next ability appears for questioning, but if the ability is wanted, the user types yes and a second part of the question appears to determine the number of points to assign to that ability. Since the user has already selected the ability, one point is automatically assigned in that area and one point is subtracted from the point total. All traits on the character sheets are ranked from zero to five, but since the character has one point in the area, the area need only be ranked from one to five. The second part of an ability question asks the user to rate the character in the ability on a scale of one to five. The number typed becomes the character's level in that ability, and that number is also subtracted from the point total. Questioning continues until all the points are distributed and each ability is covered. At the end of the questioning, a summary appears showing where each point went and what each point level means.

An example of a couple of rules are given showing the code as written by Felicia for the user being asked if the character has some science ability in the knowledges area, and the rule on dealing with a positive response in order to assign the number of points to science. The following page show two rules. For program flow, to go from one question or line of questioning to another, it is required that the previously asserted statement be in the conditions part of the rule. So for each possible outcome, there is a unique asserted statement and one to match it in the appropriate following rule. In the following rule, there are two possible outcomes. If the response is yes, the program asserts (abi-kno-thi-sc TRUE), and if no (abi-kno-thi-g3 TRUE).

```

(defrule abi-kno-thi-q3-ch2
?x <- (abi-kno-thi-q2 TRUE)
?xkno <- (curptsknow ?curptsknow)
?xm <- (numqk ?numqk)
=>
(retract ?x)
(printout t "Number of points left : "?curptsknow crlf)
(printout t "Number of questions left: "?numqk crlf)
(bind ?numqk (- ?numqk 1))
(retract ?xm)
(assert (numqk ?numqk))
(printout t "Do you have a basic understanding of the different applications of
(printout t "(i.e. physics, chemistry, botany, biology, etc.): ")
(bind ?sci (read))
(while (&& (neq ?sci y) (neq ?sci n))
  (printout "y/n: ")
  (bind ?sci (read)))
(bind ?sci (lowercase ?sci))
(printout t "" crlf)
(if (eq ?sci y)
  then (bind ?ptssci 1)
        (bind ?curptsknow (- ?curptsknow ?ptssci))
        (retract ?xkno)
        (assert (curptsknow ?curptsknow))
        (assert (abi-kno-thi-sci TRUE)))
  else (if (eq ?sci n)
    then (retract ?xkno)
          (assert (curptsknow ?curptsknow))
          (bind ?levsci 0)
          (assert (levsci ?levsci))
          (bind ?meansci "")
          (assert (meansci ?meansci))
          (assert (abi-kno-thi-q3 TRUE))))))

(defrule abi-kno-thi-science-pt2-ch2
?x <- (abi-kno-thi-sci TRUE)
?xkno <- (curptsknow ?curptsknow)
=>
(retract ?x)
(printout t "On a scale of 1 to 5, rate your knowledge in science. " crlf)
(printout t "(Use points carefully): ")
(bind ?levsci (read))
(while (&& (neq ?levsci 1) (neq ?levsci 2) (neq ?levsci 3) (neq ?levsci 4) (neq
  (printout t "1 to 5: ")
  (bind ?levsci (read)))
  (assert (levsci ?levsci))
(if (eq ?levsci 1)
  then (bind ?meansci "Student: You can make smoke bombs w/ a chemistry set.")
        (assert (meansci ?meansci))
        (bind ?ptssci 0)
        (bind ?curptsknow (- ?curptsknow ?ptssci))
        (retract ?xkno)
        (assert (curptsknow ?curptsknow))
  else (if (eq ?levsci 2)
    then (bind ?meansci "College: You understand the major theories and a
          (assert (meansci ?meansci))
          (bind ?ptssci 1)
          (bind ?curptsknow (- ?curptsknow ?ptssci))
          (retract ?xkno)
          (assert (curptsknow ?curptsknow))
    else (if (eq ?levsci 3)
      then (bind ?meansci "Masters: You could teach high-school sci
            (assert (meansci ?meansci))
            (bind ?ptssci 2)
            (bind ?curptsknow (- ?curptsknow ?ptssci))
            (retract ?xkno)
            (assert (curptsknow ?curptsknow))
      else (if (eq ?levsci 4)
        then (bind ?meansci "Doctorate: You might win a Nobel
              (assert (meansci ?meansci))
              (bind ?ptssci 3)
              (bind ?curptsknow (- ?curptsknow ?ptssci))
              (retract ?xkno)
              (assert (curptsknow ?curptsknow))
        else (if (eq ?levsci 5)
          then (bind ?meansci "Scholar: Albert Einstein
                (assert (meansci ?meansci))
                (bind ?ptssci 4)
                (bind ?curptsknow (- ?curptsknow ?ptssci))
                (retract ?xkno)
                (assert (curptsknow ?curptsknow)))))))))

```

CONCLUSIONS

The subject matter experts actually used the advisor system the day of the ISM Spring Presentation as part of the presentation speech. Our experts agreed the system was effective in cutting the time usually needed for making a character. They generally liked the results given by the system. Although some experts agreed the system worked well, they said they still would prefer the old way with paper and pencil for tradition's sake, but could utilize the advisor as an additional tool to assist in character preparation.

Even though only sixty percent of the entire character sheet for Mage was programmed, the testers and experts agreed the system was efficient and solved the problem of character-building time consumption. The rest of the character sheet could be easily added the existing program. This work shows one potential way for expert systems to move into the entertainment arena, gaming in particular. We expect the basic program framework could be generalized for other role-playing games. A question bank could be developed from which a GM would select questions to be asked of the user in defining the characteristics for use in any role-playing game.

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